Mussel mystery: "The more you know, the more you don't know"

Charlotte Gray

For most Canadians, the pre-Christmas mussel mess was a political scrap in which neither the health minister nor the opposition did particularly well. For federal researchers, though, it was a great scientific detective story.

There was no shortage of ammunition for attacks on Jake Epp, the federal health minister. The two opposition leaders asked why there was a 2-day delay between the halt on shipments and the public alert about mussel contamination — 2 days during which several victims ate contaminated platefuls.

The Atlantic fishing industry was infuriated by the government's imprecision about which products were covered by the health alert. On Dec. 11, for instance, the Department of National Health and Welfare changed its mind about the issue 10 times in 8 hours. Liberal MP Sheila Copps accused Epp of "gross incompetence". In the end, two people died and 130 more became ill.

The bureaucractic babble did not help matters. News releases were issued by both Epp and the minister of fisheries and oceans, Tom Siddon, and staff from both departments manned the hot line that was set up to respond to public concerns. However, departmental representatives were at odds as their different priorities clashed. Fisheries officials were torn between fears of "Tu-

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Shellfish poisoning: It's bound to happen elsewhere, and the world will look here for help.

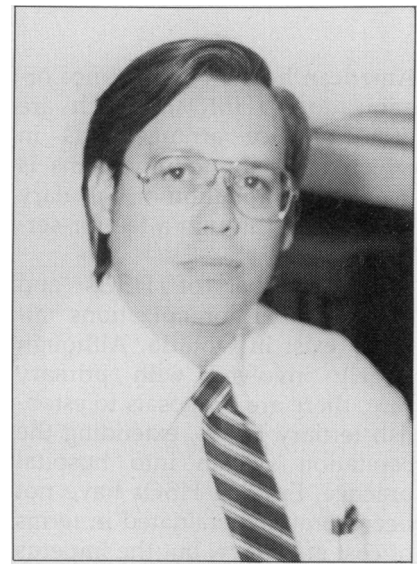
nagate Two" and their close ties to an industry under a black cloud. Their disorganization damaged the previously Teflon-coated Epp — it was a fisheries official who inadvertently included scallops in the health alert that the minister announced Dec. 11.

Health department officials, although initially slow to respond to reports of shellfish poisoning, were quick to criticize the fisheries department. They would have preferred to run the whole show, since they had more experience defusing such crises. During the Chernobyl meltdown of 1985, for example, the department had set up a public hot line, and its Laboratory Centre for Disease Control (LCDC) handles 2500 cases of notifiable disease per year. As well, the Health Protection Branch deals with 1500 cases of food poisoning annually, with an average of five cases requiring a government response. In December, employees of the Health Protection Branch were among the 1075 officials who contacted 52 689 individual retail, restaurant and other establishments in every province and territory during the recall of Atlantic molluscs.

While the politicians were busy firing their shots, an extraordinary scientific effort was quietly launched. A research network was hastily put together on Dec. 2. It involved 11 laboratories and 70 scientists and technicians, coordinated by Dr. Jean Worms, a fisheries official in Moncton, NB. As they sweated away, day and night, a friendly race to discover the toxin developed among the facilities closest to the solution. Chief among the competitors were the National Research Council's (NRC) Atlantic Research Laboratory in Halifax, and Yuzuru Shimizu, a renowned sea-toxin expert at the University of Rhode Island.

It was the NRC laboratory that made the breakthrough. At a Dec. 18 press conference, Dr. Roger Foxall of the NRC described the atmosphere in the Halifax laboratory when the toxin was identified as demoic acid: "There was a strange silence, after a superhuman effort. We had achieved in about 104 hours what, in a more normal situation, one would expect to take 4 to 5 months."

At this point, mussels disappeared from the headlines. The House of Commons rose for its Christmas break, robbing Copps of further opportunities to savage the minister. Epp appeared to have survived the storm — the only news items concerned shellfish that were now back on retailers' shelves.



Peterson: What are the symptoms?

But the story was not over for health care professionals, because several victims were still hospitalized. And the LCDC was still busy tracing poisoning cases — no easy task when mussel poisoning is not a notifiable disease and the immediate symptoms, such as nausea, are common complaints. And even though the toxin had been identified, there were no leads on an antidote.

The next stage was to pool clinicians' experience. On Dec. 23 various specialists participated in a conference call involving physicians from Montreal, Halifax, Charlottetown and Ottawa who were treating hospitalized poisoning victims. Reports Dr. Robert Peterson, medical director of the Poison Information Centre of Eastern Ontario: "Since most clinicians had only one or two patients, it was difficult for anyone to get a sense of the constellation of symptoms to expect."

Some common effects did emerge, though: a facial grimace or chewing motion in the early stages, a short-term memory loss among the very ill, and an excess of bronchial secretions. According to Dr. James Hockin, acting chief of epidemiology at the LCDC, "No specific therapy appeared effective. The patients all required supportive care, such as respirators".

The scientific investigation of demoic acid has only just begun. On Jan. 12 Worms convened a meeting in Moncton, involving mainly analytic chemists and marine biologists, to review progress and plan the next phase of research. Basic questions about the source of the demoic acid and the possibility of its reappearance in molluscs still remain.

On the clinical side, the LCDC is finally embarking on a conventional epidemiologic study, which will take at least a year to complete. "The more you know", comments Hockin, "the more you don't know."

The most serious toxicity occurred among patients aged 69 and older. No one knows why some consumers did not develop symptoms and why some victims suffered neurologic impairment. Doctors still don't know if the neurologic damage will be permanent.

This is the first recorded incident involving demoic acid poisoning. In Japan, says Peterson, a purified form of demoic acid is used as a therapeutic agent for worm infestations in humans. Details of its medical toxicity will have an international impact.

"Something like this only happens about every 10 years", observes Hockin. "Now that the syndrome has been isolated it will be like Legionnaire's disease. It is bound to happen somewhere else in the world. People will look to us for expertise on how to handle it."

In other words, the politicians involved in this affair may be forgotten, but the high calibre of Canadian research won't be.■